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Original Articles.

MENTAL HYGIENE IN THE SCHOOL.

By HORATIO M. POLLOCK, Ph.D., ALBANY, N. Y.,

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MENTAL hygiene may be defined as the science which deals with the preservation and promotion of the health of the mind. It outlines the principles and prescribes the rules which must be followed if the mind is to grow or develop in a vigorous and healthy manner.

Mental hygiene is closely related to physical hygiene, as the mind is closely related to the body. Until recently it was thought that physical hygiene comprised everything necessary to the health of the individual, but now we know that physical hygiene alone does not suffice. Many a man with a strong, healthy body has a weak or sickly mind, or perhaps more commonly, an inefficient mind. Nearly half of the insane people committed to state hospitals have no physical disease. On the other hand, it is possible for an individual to have a strong, productive mind and a weak or unhealthy body. Pope, Darwin, and Carlyle are familiar examples.

Although the mind can sometimes rise above bodily infirmities, a life in which body and mind are out of joint, even though the life of a genius, is a one-sided, distorted life. The ideal is

the healthy body governed by the healthy mind.

Physical hygiene has been greatly emphasized in recent years. Introduced in the public schools about thirty-five years ago in response to the demands of the opponents of the liquor traffic, it has gradually won its way to an honored place in the school curriculum. Although the subject has often been poorly taught, much good has resulted from its use as a class study. Children have learned something about the most wonderful thing in the living world—the human organism. They have learned how it is constructed, how it grows and what they must do and what they must not do in order to keep well. Too often the course stops short of anything like complete knowledge of the subject, but no one will deny that the effort has been worth while.

Now, today, comes mental hygiene and asks: Why am I left out? We answer, that at the time physical hygiene was introduced in the schools few people knew that mental hygiene existed at all. New knowledge has changed the situation but has not entirely overcome ignorance and prejudice relative to mental defects and diseases.

On account of their evident one-sidedness, our text books in hygiene must be rewritten and mental hygiene and physical hygiene must be taught together. Mental hygiene will not be an

extra subject but the completion of a subject already being taught.

Unfortunately the principles and rules of mental hygiene are not yet adequately formulated. Thus far, writers on the subject have been principally psychiatrists, *i.e.*, physicians specially versed in mental disorders. They have told us how to conduct ourselves so as to prevent certain forms of mental disease, such as alcoholic insanity and general paralysis, and have given suggestions concerning the prevention of two mysterious psychoses known as dementia praecox and manic-depressive insanity. But the mental hygiene that is to be taught in the school room is still to be written. The topics it must deal with, however, are obvious to anyone who has given the matter serious thought. We need not depart widely from the general plan used in teaching physical hygiene.

To begin with, we must teach the general anatomy and physiology of the nervous system and its relation to other parts of the body and to the mind. In this study the special senses must receive adequate attention.

As a basis of approach on the mental side, we must teach the general principles of psychology, paying special attention to the relation of the central nervous system to mental processes. When this preliminary work is well covered the pupil will be ready to learn what must be done to promote the health of the mind. The order in which the subject matter of mental hygiene may be best presented will be determined as experience in teaching the subject is gained. The ground to be covered will include the following:

MENTAL HABITS.

Under this head will be considered the habits of mind which make for efficiency or inefficiency, as the habit of attention, of day dreaming, of active thought, of listlessness, etc. It is easy to distinguish the habits that make for efficiency and health from those that make for inefficiency and disease. In this connection the best schools will not stop with merely pointing out the necessity of the formation of correct mental habits, but will use every means within their power to inculcate such habits in their pupils. To do this requires close observation of the reactions of each pupil to the various phases of school life. Does the pupil take a keen interest in all of his school work? Does he mingle freely and cordially with his fellow pupils? Is he interested

in school athletics or in school societies, musical organizations, etc.? Are adequate opportunities for self-expression given him and does he take advantage of such opportunities? Is his thought clear or confused? Does he meet perplexing situations squarely or evasively? Does he welcome work and responsibility or does he try to avoid them. Is he making fair progress and does he have a forward look? Answers to questions such as these will show the pupil's mental characteristics. If the answers are very unsatisfactory, it is evident that a further inquiry must be made. The child may be mentally or morally weak; he may be suffering from defective special senses; he may have some physical handicap; he may be the victim of a vicious environment; he may be troubled with mental conflicts; or his condition may be the result of his own unhealthy mental habits. Whatever may be the cause of the child's difficulty, it should be discovered and corrected if possible.

Many a child acquires faulty mental habits in the schoolroom. Instead of developing into an alert, active worker he becomes listless and indifferent, and he dawdles along in his work content to secure merely a passing mark and caring but little if he fails completely. The fault may be in the child or in the school, or the child may be wrongly placed. If a considerable portion of the pupils of any classroom are found to be indulging in faulty mental habits, the teacher and the school should be investigated. Some teachers are virtually carriers of mental disease; some schools are literally centers of contagion.

The school will not get far in helping the child whose mental habits are faulty without making a thorough study of the case and getting at the root of the trouble. If it is found deep in the make-up or disposition of the child the most skillful treatment is necessary. If the defect is superficial, it may be remedied by making needed adjustments. To neglect entirely a mental disorder discovered in a child is as culpable as to refuse to give treatment to a child suffering with diphtheria or tuberculosis.

A thorough physical and mental examination of every child at the beginning of each school year would furnish data needed for effective hygienic work. Comparisons of such data from year to year would show the progress of the pupils and the efficiency of the schools.

MENTAL FOOD.

That food is necessary for life and growth is as true of the mind as of the body. It is the business of the school to furnish food of the right kind for growing minds. The dietary of the school is the prescribed course of study while the daily ration schedule is usually left to the judgment of the teachers. In most schools all pupils of a class are fed in the same way and given the same quantity regardless of their capacity or the condition of their mental stomachs. If the mental food served does not agree with the pupil, it is assumed to be his own fault and he is usually given the option of taking the full course, or of leaving the school, or of dropping back and taking the year's work over. Mental indigestion is probably the most prevalent cause of failure in school. The remedy lies in preparing suitable food for each child. Is not the child more than the course of study, or mental health more than school regulations?

The school should not only furnish pupils mental food of the right kind, but show them what is best in the way of available mental nourishment, and how to get it and when to take it. What constitutes a balanced mental dietary for the active mind outside of school? What are the values of the various kinds of mental food offered, such as newspapers, magazine stories, fiction, history, science, art, music, etc.? When and how shall mental nourishment be taken? What is the influence on mental health and efficiency of the church? the theatre? the lyceum lecture? the motion picture? the dance? These and many other similar questions must be answered relative to the mental food available to the average child.

EXERCISE.

The mind exercises by thinking. A school is a mental mess hall and gymnasium combined. Mental exercise of the right kind promotes mental health, but excessive mental exercise or severe mental strain may prove disastrous. As systematic exercise leads to the formation of fixed habits, it is highly important that the child be guided aright and that faulty tendencies be promptly corrected. Here, also, individual attention is demanded. By careful drill the weak places may be made strong and a well-rounded symmetrical mind may be built up.

REST.

Mental rest comes through sleep, relaxation, and recreation. Sound sleep gives almost complete rest to the tired mind, relaxation affords less complete rest, while recreation or diversion gives relief to one set of mental activities by bringing another into play.

The concentration of attention secured in the best schools is very exhausting. In some schools, pupils are rushed from one class to another and no thought is given to mental fatigue or the need of relaxation. In such schools the last hour of the season finds teachers and pupils thoroughly exhausted, and they leave the schoolroom each day with a feeling of weariness, if not of disgust. The failure of schools to recognize the need of relaxation after each period of sustained concentration is a prolific cause of failure on the part of both teachers and pupils. Much attention has been given to the subject of fatigue in the schoolroom, and there is little excuse for ignoring the matter. The principles underlying the whole subject should be taught and applied by the school.

ENVIRONMENT.

The environment of a child includes everything outside himself that he feels, sees, or hears. It is a constant influence during the child's waking hours and to a less extent during sleep. The child reacts continually to sensations coming to him from the environment. The sum of such reactions constitute a large part of the conduct or behavior of the child, and in course of time have marked effect upon his disposition and character. The environment also has great influence on mental health. Like begets like. A bright, cheerful environment begets happiness, while a dark, gloomy environment begets misery. Sometimes the environment may give rise to undue mental strain and cause severe mental distress. This was frequently the case during the recent war.

While the school can control but a limited part of a child's environment, care should be taken to make that part as favorable to mental health as possible. The child should be taught the effects of various environmental factors; proper safeguards should be put about him; and in some cases it may be necessary to remove him from vicious surroundings.

PATHOLOGICAL CONDITIONS.

Pathological mental conditions belong to the

domain of the psychiatrist and physician but the elementary facts concerning such conditions should be matters of common knowledge. Every teacher should know something of mental defects, psychopathic states, neuroses and psychoses, and be able to read danger signs in the reactions of the children under her charge. The general causes of the various forms of mental defect and disease should be taught along with the causes of physical disease.

THE AIM IN TEACHING MENTAL HYGIENE.

The ultimate aim in introducing mental hygiene in the schools is to promote the mental health of each pupil. This cannot be accomplished all at once but it is the goal toward which effort should be directed. The social gains that would result from such an achievement are beyond computation. Pauperism, insanity, and crime would be greatly lessened, and the life of all would become more efficient and more harmonious.

TREATMENT OF PRURITUS ANI BY IONIC MEDICATION. PRELIMINARY REPORT.

BY WILLIAM A. ROLFE, M.D., BOSTON,

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[From the Rectal Clinic, Boston Dispensary.]

PRURITUS ANI is one of the commonest conditions seen by the rectal surgeon and one of the most rebellious to treatment.

Volumes have been written on its etiology and about every disease in the category has been mentioned as a direct or contributing cause.

The research work of Murray¹ is a valuable contribution to the etiology of this disease and his conclusion that the condition is one dependent on the infection of the perianal skin by the streptococcus fecalis, simplifies, to a great extent, the problem of treatment.

Until Murray's discovery of the cause of this disease, the treatment may be said to have been palliative. In a series of 181 cases examined bacteriologically by him, the streptococcus fecalis was found to be the common organism present in 168. In the remaining 13 cases, the infecting germ was not found because too few cultures were taken, and it is fair to assume that more extended examination might have resulted in a different finding.

In 113 of the 181 cases, Murray used an autogenous antistreptococcal vaccine which yielded good results in 99 of them.

Mummary² has described a local treatment for pruritus ani which employs electricity to drive an alcoholic solution of iodine into the tissues by cataphoresis. Since it is a fact that alcoholic solutions are not electrolytes, I fail to see how any benefit could be derived from such a procedure unless it be one due to the local action of the iodine on the superficial layers of the skin.

Other methods of treatment comprise the use of radium and exposure to the roentgen rays which are not altogether devoid of danger, as burns and sloughing of the skin have occurred, with no beneficial effect on the pruritus.

The surgical treatment of this condition involves a complete division of the sensory nerves of the affected parts; but in the light of our present day knowledge of the cause of this disease, recurrences are explainable.

Jones³ defines ionic medication as a method of treatment in which electric currents are used for their power of setting the constituents of a solution in orderly motion in a definite direction. The current is able to convey the ions of an antiseptic chemical into the skin so that the ions are brought into direct contact with intracellular organisms lurking beneath the surface and out of reach of antiseptic lotions and ointments.

The substance introduced as ions by an electric current remain much longer in the tissues than when injected hypodermically. In the latter case, they occupy the interstices of the connective tissue and are quickly carried off in the lymph stream, whereas, when introduced electrically, they enter the actual cells of the tissues and are only slowly eliminated.

Ionization depends entirely on an electrolytic process involving the dissociation of the molecules of a metal or its salts, and must therefore not be confused with cataphoresis, which is based on the laws governing osmosis, electrolysis playing no part. It is well known that the ions liberated by an electrolytic action on many metallic salts, notably zinc, copper, and iodine, are of proven antiseptic value and can be made to serve a useful purpose in the treatment of infective conditions, when introduced by direct electric current of the proper voltage.

Leduc⁴ states, "trusting to clinical evidence,

it can be said that antiseptic ions can be driven in to a sufficient depth to make them valuable in combating infective conditions."

In the treatment of pruritus ani the perianal skin can be sterilized, and the application of the electrodes is not only painless but is entirely devoid of danger of producing burns or destruction of tissue.

No bacteriological examination of the skin was made in any of the cases in this series, but the beneficial results obtained would indicate that the infecting organisms were destroyed by the ionic applications, because it is very unlikely that the condition of the skin would improve without such action taking place. In a later and more complete report this phase of the subject will be considered.

The writer has been using ionic medication at the rectal clinic of the Boston Dispensary and also in private work for non-malignant ulceration of the rectum, anal fissures, cryptitis and pruritis, and it is on the latter condition that this preliminary report is based.

It is now about six months since this method of treatment was commenced, and while this is hardly a long enough period of time to enable one to draw definite conclusions as to the permanency of the results obtained, still it is sufficient to indicate that this method is a valuable one in the treatment of this distressing condition.

It has entirely supplanted the usual method of treating this disease by the use of anti-pruritic and cauterizing applications, stock vaccines, etc.

This series of pruritus cases numbers 30, in which are included 4 involving the scrotum. There were 2 cases of pruritus vulvae which are not to be counted as belonging to this group because they have only recently come under observation and have received but a few treatments. However, they both show satisfactory progress. It should be said that this series of pruritus cases is a selected one in the sense that none were subjected to this treatment which showed such complicating lesions as hemorrhoids, fissures, fistula, eczema marginatum, etc., which might be thought to have a possible contributing effect. The duration of the disease in these cases was from eight months to thirty-five years and all presented the characteristic skin changes in varying degree.

The results of this treatment have been very encouraging, not only from the fact that the

itching has been relieved after the first application but what is still more important, the condition of the skin immediately began to improve. In six cases in which the skin was thickened, dry, and fissured, a return to normal appearance was noted after twelve or fifteen treatments given twice a week. As the condition of the skin improved, the itching diminished and in the six cases above cited, over three months have elapsed since the disappearance of the pruritus.

It was observed that after each treatment, there was a great diminution of the itching, amounting in some cases to a practical cessation, which lasted for about two days. Upon its recurrence it was less intense and more controllable, not requiring as much digging and tearing at the parts as before. In 12 cases the skin showed very marked improvement, coincident with a great lessening of pruritus, so much so that the patients reported an ability to sleep. The remaining cases are making satisfactory progress.

Murray found the opsonic index low for streptococcus in all cases of pruritus ani and states that in his experience no treatment which does not raise the phagocytic power of the blood against the infecting organism can have any lasting benefit. He further says that it is not known whether the infection occurs because the opsonins for streptococci are low or whether the opsonins are lowered because of the invading organisms.

The experience derived from the observation of this series of cases, in which improvement followed the destruction of the organisms *in situ*, would seem to point to the latter theory as the more probable one.

In particularly refractory cases, it would appear to be logical to combine the autogenous vaccine treatment with ionic medication, thus attacking the disease from within and from without.

During the treatment of these cases, no anti-pruritic ointment or washes of any kind were employed, but strict cleanliness of the parts was insisted on. Patients were instructed to wash the parts with hot water and soap after each defecation and always before retiring. This is a most important consideration in the treatment of this disease as it tends to prevent re-infection. In cases where the skin was moist and macerated, a simple talcum dusting powder was ordered.

The electrical apparatus* used in the treatment of these cases was designed primarily for the use of the dental profession but the writer found it well adapted for use in the treatment of certain rectal diseases, by the substitution of suitable electrodes.

Briefly described, the apparatus consists of a portable motor transformer for use with direct current, the function of which is to cut down the ordinary lighting current voltage of 220-110 to 40, which has been found to be the proper voltage for use in ionization work. In connection with this is a small milliammeter with a reading of from 0-10 milliamperes which enables the operator to control accurately the amount of current that is being used.

Two electrodes are necessary, one a large plate of lead or brass about 18 cm. square covered with a layer of felt about 1 cm. thick. This is the negative or indifferent electrode.

The active electrode which is applied to the affected part in pruritus ani is made from a circular piece of sheet zinc or aluminum 6 cm. in diameter and bent in such manner as to fit into the fold between the nates. In the handle, which is attached to the centre of this plate, is a binding screw for the connection of the conducting cord. This electrode must also be covered with a layer of felt and is adapted for use with iodine or zinc solutions.

The success of ionic applications depends so much upon large currents acting for a long period of time that great care is needed to adapt the electrodes carefully to the surfaces under treatment in order to avoid irregular penetration. The larger the electrodes the more current can be employed with less discomfort to the patient.

The negative and positive terminals of this instrument are marked and the connecting cords are of different colors, so that it is an easy matter to identify them at a glance. This is an important feature for the reason that in using zinc solutions, for instance, it is necessary to apply the same with the positive pole, whereas, with the use of iodine, which is repelled or driven off from the negative pole, or in other words, electro-negative, the electrode must be connected with the negative pole.

METHOD OF USE.

The writer used two solutions in the treatment of pruritus ani: a 2% solution of zinc

chloride in distilled water and Lugol's solution of iodine.

The patient is placed in the right Sims position with legs well drawn up. The large felt covered electrode, wet with a 3% solution of sodium chloride, is slipped under the right buttock and connected with either the positive or negative wire, depending on whether a zinc or iodine solution is to be used.

It is important to place the active electrode in position before allowing the current to flow through the milliammeter, and also equally important to return the needle of the meter to 0 before removing the electrode for any purpose. By observing this precaution, the patient will not experience any unpleasant sensation.

Cases showing a moist, macerated condition of the skin are treated for the first two or three times by the application of the active electrode well saturated with 2% zinc solution and connected with the positive or red cord. This preliminary treatment has a stimulating effect on the skin, which becomes somewhat less moist and presents a more healthy appearance. After two or three applications, which should last from 15 to 20 minutes, Lugol's solution of iodine is used, diluted with 4 parts of distilled water. This is applied with the negative pole and continued in subsequent treatments in gradually increasing strength as the skin becomes more and more tolerant until such time as the undiluted solution can be employed.

As iodine ions penetrate deeper and at a faster rate than the zinc ions, the time of application can be reduced to about one-half that of the zinc solution. It is well to begin treatments with a mild current of perhaps 2 or 3 milliamperes, gradually increasing the amount until the patient begins to complain of a warm sensation. There is no need of causing pain and the amperage should be kept below the painful or so called irritation point.

Cases presenting a dry, thickened, parchment-like condition of the skin are treated from the beginning with diluted iodine solution, the strength of which is gradually increased in the manner already stated.

The applications should be given at least twice weekly and three times would be better unless the skin shows signs of irritation, which is to be avoided if possible, either by prolonging the interval between treatments or using the solutions in much more diluted form.

* The Ritter Dental Mfg. Co., Rochester, N. Y.

The number of applications necessary varies with the chronicity of the case, the long standing one requiring more. It is well to continue the treatments for two or three weeks after the disappearance of the pruritus but once or twice a week will be sufficient.

As stated above, the length of time that this method of treating pruritus ani has been in use is not of sufficient duration to warrant the belief that a permanent cure has been found, but the writer is confident that this method is of great value.

In comparison with other treatments, it has the advantage of being simple and easy of application, of doing away with the use of ointments, washes and cauterizing applications, and of perfect safety.

The writer has submitted this brief report hoping that others may become interested to pursue the investigation of the ionic method of treating this most distressing condition.

I wish to express my thanks to Dr. T. Chittenden Hill of Boston, for kindly referring to me all cases of pruritus ani in the Boston Dispensary, for treatment by this method.

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- ³ Jones, H. Lewis, Ionic Medication.
- ⁴ Leche, Stephane, Electric Ions and Their Use in Medicine.

SOUVENIRS OF A MEDICAL STUDENT'S LIFE IN PARIS A LONG WHILE AGO.

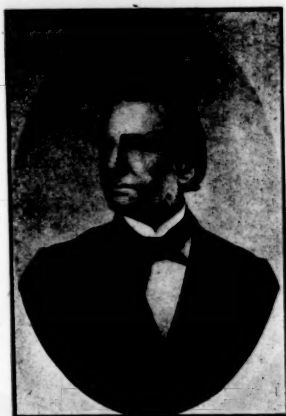
By BEVERLEY ROBINSON, M.D., New York.

IN reading Dr. Holmes' address reprinted in a recent issue of the *JOURNAL*, it brought to my mind many incidents of my life in Paris over fifty years ago. Velpeau, Andral, Cruveilhier, Dupuytren were by-words at that time of the past, but Ricord and Trousseau were still on deck. Trousseau's lectures at the Charity Hospital were models of grace of delivery and the art of medicine. His presence was refined, dignified and noble. He had his detractors, as he had his admirers. He was said by the former to be disingenuous. Grisolle in this respect was his antitype. Everything he said, or wrote, was relied upon as being absolute truth. He was not brilliant, but he was safe and sure. His work on Practice of Medi-

cine was the guiding hand of all students of medicine, much as Osler's is today with us.

My first year of medicine I served as stagiaire at the Pitié Hospital under the eye of Père Gosselin. Gosselin was a small rubicund man, passed middle age, absolutely reliable and honest, safe in every way. Not brilliant, but sure. As a surgeon he was what Grisolle was as physician. The only book of surgery used in those days by students was one of Follin—only completed after many years. One, as a rule, referred to special articles in the Dictionary of Medicine and Surgery for the best monographs on surgical subjects. Otherwise, reliance was essentially placed upon second rate surgical treatises whose names I fail now to recall. The two most renowned surgeons of those days in Paris were Nélaton at the Charity Hospital and Maisonneuve at the Hôtel Dieu. The former was refined, courteous, and admired by all. He was consulted by the highest and best from all parts of Europe. He used but two surgical dressings,—alcohol and spirit of camphor, diluted, or not. Maisonneuve was rough, at times almost brutal, but full of talent and originality. He never amputated cancer of the breast. He simply surrounded it with arrows of chloride of zinc paste and allowed the breast to slough off, with great incidental suffering to the patient; but opium was freely used in those days, hence the suffering was much mitigated; otherwise, it would have been unbearable. After amputations, he made a vacuum at the raw surface and covered it with many thicknesses of cotton wool. He claimed remarkable results. In those days there was no end to suppurative wounds. Some pus was called laudable; other pus of bad alloy. As to abdominal surgery there was none, or if there was, death was almost sure to follow. There were no prostatic operations and cystitis at times gave agony beyond thought, only in small degree relieved by opiates.

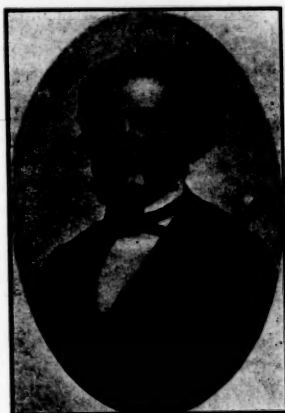
I served at the Hôtel Dieu, the old hospital, as externe of Behier, who had as chief of clinic the famous Bouchard. Bouchard had just come from the Salpêtrière where he served under Charcot. There he discovered that cerebral hemorrhage was caused, primarily, by aneurysms of arteries of the brain. Bouchard was an eminent scientist then and later; Behier was an admirable clinician. He was lively, whole-souled, beloved and followed by many devoted and admiring students. Bouchard was cold,



TROUSSEAU



BÉHIER



LE FORT



BOUDINON

distant, and not easily approachable. We all had for him much respect and admiration, but not precisely affection.

While I was at the Hôtel Dieu the epidemic of cholera occurred in Paris and many deaths took place, and nowhere more than in the old hospital on the left bank of the Seine. The post-mortem room was a black hole underground—somewhat, I imagine, like the black hole of Calcutta. However, autopsies were made and students did them then, as they do now,—their duty,—and if afraid, they did not speak or show it. Hot tea and rum were the mainstays of in-

ternal treatment for choleric, and water with a little vinegar in it, as a protective remedy, highly commended by the good Catholic sisters of charity, who nursed all the afflicted with rare courage and devotion.

I dissected at the old École Pratique in Duplay's special amphitheatre, where there were perhaps half a dozen students. One was the late dean of the Paris Faculty, Dr. Debove, well known for his work on diseases of the stomach and his illuminating treatment of tuberculosis, as done formerly.

In those days, under the Empire, we had

émeutes in the streets and not infrequently the French medical students were implicated in these riots against the government. Comme citoyen de la libre Amérique I was well treated and drank many a bock while dissecting and listening to the harangues of a fellow student from the far West, U.S.A., who deplored the abject situation of the downtrodden French people.

Duplay, later, was professor of surgery at the Paris Medical School. After several years of hard work and much pleasure, I was named Intern of the hospitals. My other American colleague was the late Dr. Thomas Curtis of Boston.

At first I served as house physician at the Midi Hospital, where venereal diseases of men were treated. Dr. Curtis served at Loureine Hospital, where women thus affected were solely treated. Dr. Curtis' attending physician was the late celebrated Alfred Fournier, a much beloved and admired pupil of Ricord. My attending surgeon, Dr. Simonnet, was most kind and intelligent, but not a prolific writer. He had his sayings, sometimes vulgar, as when he told me to support properly a swollen testicle, simply saying, "Monsieur, oeufs sur le plat, s'il vous plait." Afterwards, I was house surgeon to Professor Léon LeFort, and later still, house physician to Bergeron at Sainte Eugénie Hospital, where I saw much malignant diphtheria. I did many tracheotomies while there and finally wrote my graduating thesis on "Heart Clot in Diphtheria." I made many post-mortems of the little patients who died under our care—and despite the unexampled devotion of our good sisters of charity.

Bergeron was a model of conscientious service to all. He never shirked any duty. When I visited Paris in 1897, I went to see him. "Now," he said, "Robinson, what can I do for you? Let's go and visit the diphtheria wards of Sainte Eugénie." I declined regretfully, because of my wife, who was with me in Paris and did not enjoy the idea.

We used freely powdered cubeb in those days in treatment of diphtheria, and Bergeron believed moderately in its utility. I had even greater faith, and my faith continues.¹ Bergeron was for many years Secretary of the Paris Academy of Medicine. He died, respected by everyone. He lived a life of good works—of love to God and his fellows on earth.

I might go on and repeat many things about the gay, attractive, if not absolutely sinless, life

of a French student of medicine in Paris. *Murger* was dead, but *Vie de Bohême*, *Bal Bullier*, *le Jardin de la Pépinière*, adjoining the *Luxembourg*, existed; and even the attractive, winsome *grisette*. *Trilby* was then really existent, and scenes such as *Du Maurier* portrays I have not seldom seen. Alas, for the days which have flown, and now we shall quaff a cup of kindness yet, for *Auld Lang Syne*.

ADDENDUM

When in Paris over twenty years ago, I dined with *Dieulafoy*, at one time a fellow student, at that time professor of medicine. Duplay was present. Again, I dined with *Debove*, later dean of the faculty, and *Charles Perier*, distinguished surgeon, who coached me as pupil, candidate for the internat. I saw *Bouchard*, *Rendu*, *Landouzy* also, at one time dean, and other distinguished French physicians.

One day at the Medical Clinic of the Charity Hospital, surrounded by a crowd of enthusiastic students, *Dieulafoy* suddenly stopped his lecture on catching a glimpse of me in the outer circle. He said, "Voilà, Robinson, qui revient nous voir après bien des années. Montrez lui qu'il est le bien venu parmi nous." Grands applaudissements!

I have not spoken of the siege of Paris. I was not there, nor was I in an ambulance, I deeply regret to say. I wished vainly for the latter; as regards the former, circumstances which I could not control, obliged me to leave Paris just before the siege began.

Fortunately for my reputation, at home at least, I served as a private at the front in the emergency of 1863.

REFERENCE.

¹ On the Catarrhal Type of Diphtheria and Its Treatment by Cubeb. By *Beverley Robinson, M.D.*, *American Journal of the Medical Sciences*, July, 1875, p. 30.

A NEUROLOGICAL SYNDROME.

CONSTANT OR FREQUENT IN PSYCHOPATHOSES* WHICH IS NOT DESCRIBED IN THE LITERATURE.

BY CLAES JULIUS ENEBUSKE, M.D., BOSTON.

1. *The Syndrome.* In psychopathoses three physical symptoms,—increased cerebrospinal tension, increased maximum radial arterial tension, and toxemia—are constantly (or fre-

* The term "psychopathoses" is used in the same sense as in Southard's recent writings. *et.*

quently) found together with variable psychic anomalies. These three symptoms are to be referred to in this paper under the terms of hydrocephalotony, dysarteriotony,[†] and toxemia.[‡] Occurring always together in apparently similar manner, the symptom triad of hydrocephalotony, dysarteriotony, and toxemia constitutes a physical syndrome connected with constitutional psychopathic personality. (Even in praecox, dementia senilis, and paresis this syndrome is a constant or frequent complication.)

2. *Cerebral Hydrops.* The increased hydrocephalic pressure is caused by production of cerebrospinal fluid in excess of the amount which can simultaneously escape§ through the natural outlets from the cranial cavity (entry of the arachnoidal tufts in the dural sinuses, etc.) Thus cerebral hydrops is established, which persists continuously in persons of this class. An excessive amount of cerebrospinal fluid, particularly if continuous, is always a symptom of disease. A disease of which excessive cerebrospinal fluid is a symptom is always present as a complication closely connected with psychopathic personality. (Such a disease is also closely connected with the onset and development of praecox, dementia senilis, and paresis.)

3. *Measure of Hydrops.* The amount of hydrops existing in excess of the normal amount of cerebrospinal fluid may be roughly estimated by measuring the quantity, the withdrawal of which through lumbar puncture (under due precautions) is sufficient to reduce the cerebrospinal tension to the normal pressure level. This quantity is variable. In young boys with psychopathic tendencies, during quiet intervals, withdrawal of 8 cc. cerebrospinal fluid|| may be sufficient to reduce the tension to about the normal pressure level and thus temporarily to relieve the hydrops and for some hours to re-establish approximately normal hydrostatic tension in the cranial cavity. However, soon afterwards the fluid is again reproduced in excessive amount: in less than 24 hours after the lumbar puncture a measurable excess appears; and in less than 48 hours the cerebrospinal ten-

sion may exceed the tension at the time just preceding the withdrawal of the fluid.

4. *Exacerbations of Hydro Pressure.* The hydrocephalic hypertension varies in different psychopathic individuals and in the same person at different times. At the occasion of outbursts of temper and violence, and preceding such outbursts, the cerebrospinal tension increases in excess of the hypertension which continuously exists in persons of this class. The observation that cerebrospinal hypertension is continuous does not exclude the possibility of remissions associated with spontaneous reduction of cerebrospinal tension to normal pressure level. Such remissions may occur in certain psychopathic persons, but hitherto I have not seen spontaneously normal cerebrospinal tension in this class of individuals.

5. *Hydrops Produces Cerebral Anemia.* Increase of hydrocephalic pressure, when continuous, is in some degree an impediment to the normal flow of blood through the cerebral arteries, and this impediment is particularly emphasized when, simultaneously with the tantrums and preceding their outbursts in violence, the cerebrospinal pressure rises to a level above the continuously existing hypertension. Thus results cerebral anemia in some degree, varying at different times with the variable degree of hydrops and cerebrospinal hypertension, which cerebral anemia, in view of facts already mentioned, may be assumed to reach maximum at periods of tantrums and preceding the outbursts of distemper and violence. The assumption of cerebral anemia is based on clinical evidence; it is not physiological deduction.

6. *Cerebral Anemia and Psychopathic Anomalies.* Many of the symptoms of psychopathoses resemble symptoms known to exist together with cerebral anemia and supposed to be caused by it. I allude particularly to initial and lesser symptoms, such as headaches, insomnia or somnolence, impaired attention, inaptitude for work, psychic pain, psychic unrest, irritability.

7. *Increased Intracranial Pressure: Is it a Cause of Pressure-atrophy and Loss of Cerebral Neurons?* Cerebral anemia, caused by increased hydrocephalic pressure, if long continued, interferes with the osmotic processes and impairs the nutrition of the brain. Thus pressure-atrophy develops with the injury caused by toxic irritation: degenerative changes, deposit

[†] Regarding dysarteriotony, cf. Enebuske: "On the Vasomotor Unrest in the Insane," *Boston Medical and Surgical Journal*, March 15, 1917; *ibidem*, "The Normal Arterial Tension," *ibidem*, March 6, 1919.

[‡] A paper on the subject of toxemia will be published by the author at a future date.

[§] Cf. page 206.

^{||} Due precautions.

of products of disassimilation in and about the ganglions, shrinking and gradual disappearance of ganglions and axons together with reactive gliaproliferation progressing slowly, and finally entailing symptoms of organic mental deterioration beyond the early psychopathic stigmata, even though this development may be slow in persons belonging in this class.

8. *Biochemic-hydrostatic Conception.* The preceding conception should not be understood as contradicting or in any particular disputing the psychological conception of psychopathic personality. On the contrary, it supplements the physiological and the anatomical conceptions. The demonstration of the coexistence of certain well-defined physical (biochemic-hydrostatic) phenomena which in no wise contradict but supplement and even, in a measure, explain psychological phenomena and anatomical facts, previously observed and recorded, should only strengthen and amplify the scientific value of such conceptions previously established.

9. *Intracranial Pressure and Psychopathic Tantrums.* In view of what has been represented on the preceding pages, we may now picture in our minds the state of the psychopathic person during the periods of tantrum with outbursts of distemper and violence. What particular form the outburst may take and what its content may be, whether it be swearing, banging, breaking and throwing things about, or taking the other man's life, running away with the wrong woman, stealing a neighbor's money, setting his house on fire, or numberless other incidents of this kind, they are all phenomena in different ways related to the operation of psychological processes, the discussion of which would not be worth the while in this connection. That which concerns us in this connection is the biochemic-hydrostatic intracranial situation: with cerebral hydrops due to toxic irritation of the ependyma (ependymal cells lining the vascular choroid plexuses), caused by disturbances of the metabolism of as yet imperfectly understood nature but appearing to be connected with subnormal activity of certain enzymes; with the cerebrospinal pressure, already beforehand abnormally high, now rising still higher; with his corona radiata and internal capsule, his cortex and basal ganglia, his crura, pons, cerebellum and medulla seized, as it were, in the grip of the increasing hydrocephalic pressure.

His brain is as if pressed in a vise, the one jaw of which is in the lateral ventricle, his mid-cerebral, and his fourth, the other in the pia-arachnoid space. The distemper and violence, tantrums of whatever nature, break out from the dysthymic and dysbulic mental soil, made up of psychic pain and psychic unrest, anxiety and irritability, connected with the pressure-mechanism alluded to.

10. *Importance of Increased Intracranial Pressure.* The coincidence of the exacerbation of the hydrocephalic hypertension with the exaggeration of the psychological reactions is sufficient reason to consider this symptom very important from a nosological viewpoint.

b. The fact that the exacerbation of hydrocephalic hypertension precedes in time the outburst of distemper and violence and may precede them by hours, emphasizes still more the importance of the study of this symptom.

c. The fact that exacerbations of hydrocephalic hypertension, as here described in reference to psychopathoses, occur with apparently similar connections (although with different forms and contents of the outbursts) in raptus epilepticus, raptus melancholicus, and raptus maniacus, as far as my observations hitherto can determine, besides being observable in phases of excitement and agitation in praecox, dementia senilis, and paresis, strengthens my justification, if need be, in calling the attention of the profession to this symptom.

d. Finally the fact that increased cerebrospinal tension, as described, is capable of being eliminated by rational therapy, completely or in greater or smaller degree, in the diseases considered in this paper, endows this symptom with still further interest and importance from a practical point of view. This will now be briefly considered with reference to the etiology of psychopathoses, as well as diagnosis, prognosis, therapy, and prophylaxis.

11. *Etiology.* Considering the great prominence given in contemporary literature to heredity as a principal etiological factor in determining constitutional psychopathic inferiority, the symptom of dyshydrocephalotomy should be given proper consideration in determining the etiology of an individual case. If the elimination of this symptom by therapeutic technique, of whatever kind it may be, is followed by more or less reduction of the psychic anomalies previously existing, the origin of the disease should not unhesitatingly

be charged to heredity. In fact, failing development of cerebral neurons caused by anomalous intracranial pressure and toxic irritation, with mental defectiveness as sequel, may have taken place early in life after birth or even before birth as a result of the physical disease of which the cerebral hydrops is a symptom.

Indeed, the disease which causes the excessive production of cerebrospinal fluid may have originated before birth in consequence of diseased metabolism of the mother during pregnancy. Subnormality of enzyme-action of the mother during pregnancy may have caused cerebral hydrops of the child before birth. Failure of development of part of the encephalic neurons as well as appearance of "physical stigmata of degeneration" such as macrocephaly, craniofacial sciosis, and a multitude of cranial and facial anomalies and defects may thus be understood as results of abnormal degree and distribution of hydrostatic pressure ante partum.

To the scientific mind such interpretation certainly seems more comprehensible and satisfactory than charging the genesis of constitutional psychopathic inferiority to the enterprise of a mystic "determina-substance carried by the germ-plasm."

12. *Diagnosis.* In reference to diagnosis, due attention should be given to the symptoms of dyshydrocephalotomy. Several of the symptoms belonging to psychopathoses are of such a nature that they may be satisfactorily understood as caused by increased intracranial pressure and toxic irritation. If in a given case the elimination of the symptom of hydrocephalic hypertension, by whatever therapeutic technique, is followed by disappearance of the psychological symptoms presented by the case, and if thereafter the judgment, character, and conduct of the patient prove to possess fair normality, and if tantrums cease to appear in reasonably measured time, then reasons exist to admit the possibility of the symptoms in that particular case having been caused by anomalous intracranial pressure due to chronic enzyme subnormality, pending further investigation, or some other removable cause not discussed in this paper. Such a case should not be labelled constitutional psychopathic inferiority.

13. *Prognosis.* In the mind of contemporary psychiatry, the prognosis of constitu-

tional psychopathic personality is pessimistic for obvious reasons. The prognostic notions of any period in medicine are determined by the sum of experiences of the past. On that ground the prognosis can only be pessimistic. However, throughout all ages of the past, the increased intracranial pressure due to excessive production of cerebrospinal fluid has had its deleterious influence upon the judgment, character, and conduct of some individuals, and on some occasions it has had its disastrous share in the tantrums which from time to time have caused disturbances in the communities. If the time should ever come when the symptom of dyshydrocephalotomy receives the attention of general practitioners as well as neurologists and psychiatrists, it may yet be that the prognosis of constitutional psychopathic personality may get a share in the beneficent influence of the seeming optimism of American minds.

14. *Therapy.* Under the conception which I have discussed in this paper, it is obviously indicated to eliminate the increased intracranial pressure. From the records of Quinke's idiopathic hydrocephalus, instances of spontaneous recovery from that disease are known. Therapeutic attempts in the past with reference to Quinke's idiopathic hydrocephalus as well as congenital hydrocephalus have been chiefly surgical. Operations of ingenious conception and brilliant technique (Harvey Cushing) have been performed; and in the literature, "Meningitis Serosa" is regarded as incurable by internal therapy. However, the etiology of Quinke's idiopathic hydrocephalus is unknown, and necropsic data leave this disease unexplained. Therefore, it would not be justifiable to conclude that the cerebral hydrops of psychopathoses is of the same nature as Quinke's "Meningitis Serosa," and consequently incurable by internal therapy.

In fact, the cerebrospinal hypertension in psychopathoses is reducible by internal therapeutic technique, if directed against the co-existing toxemia. If such therapy be carried on with exactitude and with the perseverance which may be required (in different cases varying from two weeks to fifteen months, according to the author's experience up to the present time), than a spontaneously stable cerebrospinal tension at approximately normal

pressure-level may be attained under felicitous circumstances.

In order to give a comprehensive view of the subject, it has been necessary in this paper to discuss the therapy as if toxemia were the only cause of the increased intracranial pressure in psychopathoses. It is one factor and important, but it is not the only one. For, supposing that the therapeutic technique applied has been carried through successfully, it is yet possible under certain circumstances that disturbances of cerebrospinal tension, derived from other entirely different causes than toxemia, may complicate the symptom-picture. The possibility of such complications must be foreseen by the physician and obviated, if possible; or else, if necessary, be met by suitable therapy according to the symptoms which are presented.

All these conditions cannot be discussed in the present paper without enlarging its scope far beyond the limits indicated by its title.

The results of any therapy that may be used under the conception here presented must be judged from two separate points of view: (1) Recovery from present symptoms, neurological and psychological, so far as they depend upon or are caused by increased intracranial pressure, cerebral anemia, and toxemia; (2) prevention of future mental deterioration by atrophy of encephalic neurons as the result of increased intracranial pressure and toxic irritation.

As a corollary to these requirements, it is important to study the influence which any therapeutic technique under consideration may have upon the production of cerebrospinal fluid and consequently upon the intracranial pressure.

15. *Prophylaxis.* The reader who has followed my discussion to this point is undoubtedly aware that I have in mind the class of youth whose education presents difficulties because of anomalies of judgment, character, and conduct, the class of youth which is apt to be sent on a circuitous route between home and medical consultant, police department, school authorities, insane hospital, charity and reform agencies, agricultural colonies, prisons, and other institutions of the kind in search for the most suitable environment for socializing influence and development.

The symptoms which at first attract the attention of guardians in these cases, and be-

cause of which medical consultation is resorted to, are apt to be headaches, insomnia, and minor psychic symptoms, such as impaired attention, inaptitude for work, psychic pain, psychic unrest and irritability. In such cases, headaches and insomnia are at first likely to be regarded as leading symptoms, and treatment may be instituted accordingly. Headache, when occurring in the symptom-picture alluded to, should not be disposed of without etiological diagnosis if this can possibly be made. The same may be said of insomnia, which, of course, is a very unnatural phenomenon in the young.

In the past, previous to the age of Reginald Fitz and William McBurney, bellyache was a symptom which not rarely was treated by anodynes, and the sequelae in the disease were not understood in their relation to lost opportunity. Who would now be willing to be present in a consultation where bellyache was left without etiological diagnosis and without adequate treatment?

Headache should always receive etiological diagnosis before therapy is resorted to. If headache in youth is associated with psychic pain and other minor psychic symptoms, with a tendency to chronicity, in such cases the possibility of increased intracranial pressure should be given due regard, even in the absence of such gross symptoms as choked disk, retracted neck, rigidity or palsies of muscles, innervated by cranial nerves, etc.

At any rate, whatever treatment may be resorted to, the influence of that treatment upon the production of cerebrospinal fluid and consequently upon the intracranial pressure is a matter that requires consideration.

Prophylaxis in youth may accomplish much. Even more may be expected from further development of the prophylaxis of pregnancy. Intracranial hypertension in the offspring, caused by prenatal excess in the production of cerebrospinal fluid, may be obviated in the future by improved understanding of the anomalies of metabolism during pregnancy. This problem is closely related to the further development of biochemic pathology under the influence of the scientific activities of the present time, in which American science, and particularly Boston science, occupies a conspicuous place.

Prophylaxis of pregnancy in relation to the intracranial pressure of the offspring evidently

may be considered to have an important bearing upon the future statistics of feeble-mindedness. The scope of this paper, as indicated by its title, precludes consideration of the vast subject of feeble-mindedness.

16. *Identity of the Disease of Which Increased Cerebrospinal Tension in Psychopathoses is a Symptom.* An excessive amount of cerebrospinal fluid, if continuously existing or frequently recurring, is a symptom of disease, and the disease of which it is a symptom belongs to the nosological group of hydrocephalus. Moreover, the cerebrospinal fluid in psychopathoses being normal in appearance without pleiocytosis or protein increase, the disease is related to idiopathic hydrocephalus internus, or "meningitis serosa," or ependymitis, or Quinke's disease. Quinke's disease involves a pathological increase of cerebrospinal fluid through over production or retention in the cranial cavity.

Retention, if it be the cause, may be due to obstruction at some point of the channels of outlet of the fluid from the cranial cavity, as occlusion of the foramina of Munro, Luschka, Magendie, or of aqueductus Sylvii, or of the perforations in the roof of the fourth ventricle or at the entrance of the arachnoid tufts in the dural sinuses, or through thrombosis of the dural sinuses, or through venous stasis.

Considering the fact that the cerebrospinal fluid in psychopathoses is of normal appearance, it is not probable that obstruction of the circulation of the cerebrospinal fluid is the cause of cerebral hydrops in psychopathoses. For the causes of obstruction, when such exist, are generally meningeal and ependymal inflammations, tumors, and sinus thrombosis, all of which give rise to symptoms which make them recognizable and which do not exist in psychopathoses, save as exceptional complications not belonging to psychopathoses as such.

It seems probable to a degree bordering on certainty that the excessive amount of fluid in the cranial cavity in psychopathoses is due to over production of the fluid. The deduction would be in accord with the rapidity with which the fluid is reproduced after withdrawal through lumbar puncture, as illustrated by the cases previously referred to in this paper (page 202).

The necropsic data of psychopathoses point to identity or similarity with Quinke's "men-

ingitis serosa," in which disease the ependyma may be smooth and natural looking in acute cases, and thickened in chronic cases.

The clinical manifestations of Quinke's "Meningitis Serosa" have a wide range of variations. In acute forms the symptoms resemble infectious meningitis, abscess, or tumor with symptoms such as choked disk, retraction of neck, irritative or parietic symptoms from the cranial nerves, slow pulse, fever or not. In chronic forms the symptoms are headache, slight fever, exophthalmos, optic neuritis, spasms of the muscles of the head and the neck, paralysis of cranial nerves, somnolence and delirium, etc. Recovery may occur even in cases in which the symptoms may have seemed alarming. In chronic cases the symptoms may be so slight as to be scarcely noticeable.

In Quinke's disease, the morbid reactions connected with increased intracranial pressure are almost wholly neurological; psychological reactions are not prominent, and chronic cases are represented by such symptoms as somnolence and delirium. In psychopathoses, on the contrary, the morbid reactions connected with increased intracranial pressure from hydrops are overwhelmingly psychological; neurological reactions do not attract attention much in many cases.

Whether etiologically the hydrops of psychopathoses is identical with the hydrops of Quinke's "meningitis serosa" cannot be decided for the reason that the etiology of Quinke's "meningitis serosa" is unknown. In the etiology of the hydrops of psychopathoses, toxemia is a factor and an important factor, for reasons that have been alluded to on previous pages. In a subsequent paper, the subject of toxemia as the cause of increased cerebral tension will be discussed, and then I will present data obtained by direct observation and experimental methods which prove the reality of toxemia as a cause of increased cerebrospinal tension.

At present, for lack of knowledge regarding the etiology of Quinke's disease, the question cannot be decided; but the pathology and the clinical manifestations of Quinke's disease do not contradict the possibility that it may be identified with the hydrops existing in psychopathoses, and that the latter hydrops is a more chronic form of essentially the same disease as far as physical symptoms are concerned,

with possibly different pressure distribution, less basal, more ventricular (lateral), frontoparietal and cortical, at any rate with less marked neurological symptoms, and connected with the psychological symptoms of psychopathoses.

The foregoing discussion on the identity of the hydrops in psychopathoses may be summed up as follows:

The excessive cerebrospinal fluid in psychopathoses is either identical with Quinke's "meningitis serosa" or it is not. If they are not identical, then the hydrops of psychopathoses which I have described in this paper belongs to a new neurological disease which in connection with psychopathoses appears as the syndrome of dyshydrocephalotony, dysarteriotony, and toxemia.

If, on the contrary, further evolution of knowledge in this field should ultimately prove identity to exist between Quinke's disease and the cerebral hydrops of psychopathoses, then Quinke's disease should be curable by internal therapeutic technique for the same reason that the excessive production of cerebrospinal fluid in psychopathoses is curable.

If Quinke's disease in the future shall be proven to be curable by internal therapy, then we shall have evidence which may be expected ultimately to lead to therapeutic progress in the treatment of hydrocephalus of early infancy and, in consequence, lead to improvement in the statistics of feeble-mindedness.

Quinke's disease has never come under my personal observation, and my remarks in reference to it are based on recent writers. The description of this disease by Sir William Osler makes it appear to be a sort of sphinx, which may be the unexpected cause of disturbance and at times surprise the diagnostician.

17. *Conclusion.* The syndrome of dyshydrocephalotony, dysarteriotony, and toxemia needs the attention of general practitioners as well as neurologists and psychiatrists.

If the future destiny of the class of youth, which is spoken of as the class of constitutional psychopathic inferiority, is to be brighter than the past, the change for the better can come only through the activities and initiative of the medical profession.

Public feeling revolts against such conceptions as surgical sterilization and restrictive

marriage legislation. To sensitive souls segregation is synonymous with burial alive.

Ancient superstitions, demonological notions under new names, hypotheses without substance, *apparitio sine essentia* can be dissipated; coarse-fingered methods, cloaked cruelties of the past, and abusive powers over the defenceless can be abolished and substituted by rationalized methods based on true realities. It can be accomplished only through the growth and distribution of knowledge in the wake of the activities of medical science. Scientific research is endowed with eternal youth. Prophylaxis and therapy should never part from optimism. From antiquity descends upon us through the ages the unequivocal demand: "Let the cure and welfare of the patient be the first duty of the physician."

More than two thousand years ago, Hippocrates conducted the psychopaths and the insane out of the ancient temples of Asclepiades and intrusted them to the treatment and care of scientific medicine.

For about the last century these sufferers have been "humanitarianized." They are still awaiting the oncoming of the rational therapy and prophylaxis. While waiting, a portion of their encephalic neurons slowly or rapidly degenerate, shrink, and disappear with gliasubstitution and oedema under increased intracranial pressure. "*Fugit irreparabile tempus.*"

Medical Progress.

PROGRESS OF ORTHOPEDIC SURGERY.

By C. HERMANN BUCHOLZ, M.D., ROBERT SOUTTER, M.D., LT.-COL. ROBERT B. OSGOOD, H. C. LOW, M.D., MAJ. MURRAY S. DANFORTH, BOSTON.

(Continued from Vol. clxxx, page 675.)

BONE AND JOINT SURGERY.

Arthroplasty.

Baer²⁴ has had the chance to reopen four of the joints where arthroplasty with animal membrane had been done. In each case he found that the joint space persisted and the lining of the bones was perfectly smooth. The microscopic examination showed that the membrane is transformed into a fibrous tissue which covers

the bone and that a joint-like space is formed with fibrous walls, similar in all respects to the walls of a cavity encysting a foreign body.

The advantages of the membrane are: (1) the joint will retain as near its normal size and shape as possible; (2) the simplicity of the operation; (3) the stability of the joint; (4) less chance of infection because of the lessened handling; (5) less painful after-treatment, because movements are not begun before three weeks; (6) a normal joint is the ultimate result; no foreign substance is left as the membrane is absorbed within 60 to 100 days.

The membrane must be (1) thin and flexible; (2) tenacious to withstand disintegration for 60 to 100 days; (3) durable; (4) absolutely sterile. The membrane is made in the following way: The pigs' bladders, carefully selected, are thoroughly cleansed and disinfected and the submucosa obtained. They are then soaked for twenty-four hours in a medium hard potassium chromate solution, after which they are cut into the proper size, stretched on boards and exposed to the sunlight for three days, until the color corresponds to the reduction of the chromic salt. After being freed from all their soluble chromic salts they are thoroughly dried, and are then inserted into sterile glass tubes containing chloroform. At the time of the operation, these tubes are boiled for five minutes. The tube is then broken and the membrane placed in normal salt solution for ten minutes before using.

Baer reports 100 cases with 68 good results, painless and useful joints with more than 25 degrees of motion, as far as the hip and knee are concerned. For the knee he uses now the horseshoe incision through the patellar tendon, because the time of absolute rest, which is four weeks for the knee joint, allows a perfect union of the split tendon. In several cases of old tuberculosis the disease has lightened up again and spoiled the result.

Henderson²⁵ has collected 43 cases of arthroplasty from the Mayo clinic and 395 from the literature and from letters written to a number of surgeons. The results are given in the following tables:

COLLECTED CASES.

	No.	Good	%	Fair	%	Poor	%
Elbow .	126	97	76	21	18	8	6
Knee .	117	18	15	30	25	69	59
Hip	98	56	57	18	18	24	24
Jaw	32	30	93	1	..	1	..
Ankle ..	22	3	13	13	59	6	27
Total ..	395	204	51	83	21	108	27

CASES IN THE MAYO CLINIC.

	No.	Good	%	Fair	%	Poor	%
Elbow .	21	12	55	8	38	6	27
Jaw ...	12	8	..	2	..	2	..
Hip	4	1	..	1	..	1	..
Knee ...	4	1	..	1	..	3	..
Ankle ..	2	1	..	1
Total ..	43	22	55	9	13	12	27

Allison and Brooks²⁶ have made a careful and comprehensive study of the history of arthroplasty and have contributed to our knowledge by valuable experiments. They agree with Baer in considering animal membrane the most promising material of interposition, but emphasize that the substance used must have the least possible irritating properties. They have prepared a silver impregnated fascia in the following way: Living fascia is immersed in a solution of silver nitrate until it is hardened, and then the silver nitrate absorbed by the fascia is reduced to metallic silver. This gives a sterile, pliable, thin, non-irritating membrane. The reasons for the addition of the silver are: (1) it has been shown that metallic silver has definite inhibitory powers both of organisms and tissues; (2) the method of fixation is such that the membrane is always perfectly sterile; (3) the fixative, which is of necessity an irritating chemical, is entirely destroyed. The fascia may be taken from the patient by a preliminary operation. In doing arthroplasty on the knee joint the authors have previously used the horseshoe incision with temporary resection of the tibial tubercle; but recently they have given up this method of approach in favor of the anterior longitudinal incision, because they emphasize the necessity of early action and passive motion, which would not be safe before the time the tibial tubercle is perfectly united.

Putti²⁷ in the first article of his newly founded journal, "Chirurgia degli organi di movimento," describes his technic of arthroplasty of the knee joint which in essential points is similar to Payr's method: horseshoe incision with temporary resection of the tibial tubercle which is at the end fastened by a long thumb-nail, large flaps of fat and fascia over the ends of the femur and tibia, or over the femur alone, shaping the patella, lengthening, if necessary, the quadriceps tendon. The initial mobilization must be done by the patient himself with a simple cord and pulley device. Putti has obtained excellent results in 8 out of 10 cases showing mobility of 40, 50, 80, 85, 95, 100 and even 125 degrees.

Bone Grafts.

Keith³⁸ discusses the history of bone grafting and sums up the subject as follows:

In the light of our present knowledge, among the conditions which determine the successful grafting of bones or of bone-fragments, we must place first asepsis. Grafts answer best which are taken from the patient's own body; the closer the genetic relationship of the graft-host, the better is the graft likely to answer. The graft-host should be young, and those grafts do best which contain all three elements of bone—bone, periosteum, and medullary tissue. The graft-bed must be free from blood-clot. Washing in normal saline solution damages the vitality of a graft. A graft must be placed so that the contact is effected with adjacent fragments; the contact must be firm and so designed that the graft becomes early subjected to the mechanical stresses and strains of the part.

Numerous experiments as well as a sufficient amount of clinical experience have convinced Gallie³⁹ that boiled bone is an excellent substitute for the autogenous graft. The great advantage lies in the chance to model the graft beforehand and save time during the operation. In this way plates and screws have been made for fractures,—long screws for fractures of the neck of the femur grafts, especially modelled for spinal operations, etc. Gallie points out the difference which exists between bone grafting in fractures and in Pott's disease in so far as in the former the contact is uninterrupted and in the latter not. But by examining operated cases seven months and two years after the first operation, he has found that even those parts of the graft which have not been in contact with bone become organized and at the end represent living bone. The observation that cancellous bone will be vascularized and permeated by living osteoblasts much more quickly than the dense bone of the cortex holds true also for boiled bone. Hence for plastic operations the material should be as porous as the required strength will allow. Beef ribs are excellent for spinal grafts.

Having found great difficulties in bridging defects in one bone of the forearm by Lane plates or intramedullary grafts, Bancroft⁴⁰ has used small bone fragments after experimenting on dogs in the following way: A piece of three cm. length is removed from the radius and the periosteum excised over the defect as well as one to two cm. over both ends. The excised bone is split lengthwise and all the endosteum removed.

Then it is cut in small fragments of one to two millimeter width and these are inserted into the defect. Good union was thus obtained in 22 cases. Bancroft thinks that too much importance has been placed upon the origin of the bone cell as the vital factor in bone repair. Bone is mesoblastic in origin; in its repair calcium salts are deposited on the intracellular elements of connective tissue, forming new bone. The connective tissue cell by metaplasia becomes a bone cell. Periosteum is connective tissue, hence prone to form bone, but it is not the only connective tissue that has this function.

Tendon Transplantation.

Steindler⁴¹ emphasizes the great possibilities of operative construction of the crippled and paralyzed hand with its muscle supply being much more abundant than that of the foot, with the greater chances of detaching muscles, the absence of gravity and weight bearing, and much greater possibilities of reëducation. Examples: (1) Drop wrist following paralysis of the musculo-spiral nerve; arthrodesis in slight dorsiflexion with transplantation of the flexor carpi ulnaris to the extensor digitorum. (2) Hyperextension of the metacarpo-phalangeal joints; osteotomy of the metacarpal bones similar to the osteotomy of the metatarsals described by Meisenbach for the treatment of claw foot. (3) Loss of opposition of the thumb; the tendon of the flexor pollicis longus is split within the thenar and its outer halves are fastened to the radial side of the base of the first phalanx of the thumb. (4) Inability to extend the thumb; transplantation of the extensor indicis proprius into the tendon of the extensor pollicis longus. (5) Loss of thumb; plastic repair by a piece of a rib and soft tissue skin flap. The after-care in all such cases, which should be started as early as possible, consists of medico-mechanical treatment followed by occupational work, such as moulding clay, raffia work, weaving, blocks, puzzle pictures, etc.

Operative Shortening of Bones.

Calvé and Galland⁴² discuss the objections against and advantages of compensatory shortening of the unaffected femur in cases of marked shortening of the other leg. The following objections have been raised against this method: (1) The muscles are too long; this is not so, but they adapt themselves very readily, as could be seen even during the operation. (2) The other objection that the body is shortened is

admitted, but the advantage of equalization is so great as to outweigh the disadvantage of the general shortening. The advantages on the other hand are evident; in certain cases a *restitutio ad integrum* is possible and at any rate the clumsy and expensive high-heeled shoe can be abolished. This method is much better than lengthening the affected femur, because the latter operation is very dangerous especially in old septic cases, such as war fractures; moreover, it is very difficult and often quite impossible to overcome the retraction of the muscles, even with multiple tenotomies. The operation is indicated with a shortening of five cm., and even up to a difference of thirteen cm. a full functional compensation can be obtained by removing seven cm. and allowing three cm. each for the flexed knee and a high sole.

The resection must be mathematically exact and no foreign material should be inserted. The authors describe three variations of their method.

1. Auto-pegging; a quadrangular tenon left on the lower fragment is inserted into the medullary cavity of the upper part.
2. Setting by tenon and mortise.
3. Dovetailing.

For numbers 1 and 2, the cutting surface is oblique; in number 3, it is horizontal. In addition to Albee's motor saw outfit a special set of instruments is used. A guide fastened to a bone forceps warrants exact cutting. For details, the original article with its excellent illustrations should be studied.

New Approach to the Hip Joint.

Smith-Petersen⁴² describes a new supra-articular subperiosteal approach to the hip joint as follows: An anterior incision is made from the anterior superior spine along the anterior border of the tensor fasciae latae to below the level of the trochanter. Then a curved incision is made from the anterior superior spine along the crest of the ilium, through the origin of the gluteus medius about one-half inch below the superior border of its periosteal attachment. When the skin muscle flap is freed from the ilium by subperiosteal dissection and the origin of the tensor fascia is reflected together with the flap the capsule is exposed and is entered above the ilio-femoral ligament.

The operation has so far been used in cases of congenital dislocation, for which it gives an

excellent approach; but the author believes that also for other procedures, such as arthrodesis, his method is likewise of advantage.

Congenital Elevation of the Scapula.

Peckham⁴⁴ has devised a new method for the relief of congenital elevation of the scapula. From a vertical incision between the scapula and the spinous processes, a wedge shaped piece of the trapezius is excised with the base at the spine of the scapula. The lower angle of the scapula is drawn toward the spine and fastened with chromic catgut to the region of the tenth, eleventh, and twelfth spinous processes. The result in the reported case has been very satisfactory; the shoulders are almost level and almost full elevation of the arm is possible.

Simplified Laminectomy.

Gaenslen⁴⁵ describes a simplified technic of laminectomy, as follows: The spinous processes are split as in Albee's operation, then broken down on the base, and the soft tissues and periosteum stripped off the laminae with the halves of the spinous process still attached. The operation proceeds further in the usual way. The advantages of this modification are said to be rapidity, diminished trauma and hemorrhage, more accurate and firmer closure by virtue of the union of the bony components. If advisable, a bone graft may be inserted, with the advantage that it finds numerous bone surfaces and not only on both ends as in the typical method of laminectomy. In the discussion, Ryerson advocates the method and says that by using the motor saw for splitting the spinous processes the trauma and hemorrhage may still be further diminished.

Fractures.

Brooke's⁴⁶ experience shows that a considerable damage may be done to the tibia by the removal of a piece of bone for a plastic operation. He has seen a fracture of the tibia in three cases where a grafting had been done for fractures of the upper extremity. The patients were allowed to walk after five weeks and the fracture of the tibia occurred from a very slight injury. In all three cases, the removal of the graft had been done with a motor saw and without chiseling. Hence it would seem well in such cases to protect the tibia for a longer time, when weight bearing is allowed so soon after the operation.

Treatment of the fractured femoral neck has been the subject of frequent consideration and

most observers recommend Whitman's abduction treatment as the method of choice at least for the early cases, both in adults and children, while they want to have the operative method reserved for certain selected fresh cases and for the old ununited cases. (Hunkins,⁴⁷ Taylor,⁴⁸ Whitbeck,⁴⁹ Ryerson,⁵⁰ Lord⁵¹). The most remarkable contributions along this line are those of Albee⁵² and Brackett.⁵³ Albee has perfected the bone grafting method which he calls the glass stopper method. His technique is as follows: The fragments are properly adjusted from an anterior incision. Then from a lateral incision a canal is drilled through the subtrochanteric region, the neck and the head. In this canal is inserted a peg made of the tibia which fits exactly in the hole, like a glass stopper in the bottle.

Brackett has obtained very encouraging results in old ununited fractures by grafting the femoral head upon the trochanteric region in the following manner. From a large flap incision the trochanter is exposed. The insertions of the gluteus medius and minimus are lifted up with a thin slice of bone and the joint is opened. Then the trochanteric region of the femur is shaped to fit into a round depression which is made in the head. In abducting the femur one can now see the head move upon and with the shaft, usually to a surprisingly great extent. The leg is held in full abduction until the plaster cast is applied. No other fixation of the fragment is attempted than by exact suture of the capsule and the position of the leg in abduction. The glutei are fixed in place and the soft tissues sewed in layers.

Fat Embolism.

Caldwell and Huber⁵⁴ report on an experimental study of production and prevention of fat embolism due to trauma to bones. They found that crushing the tibiae of mature rabbits produced a moderate and fairly constant amount of fat embolism, as determined by counting the fat droplets in a large number of representative microscopic fields, in stained sections of lung tissue. Esmarch constrictors placed on the legs of rabbits, previous to the crushing of the tibiae and removed after two hours, lessen distinctly the amount of fat entering the lungs during the remainder of the experimental period; this effect is much less marked and more uncertain when they are removed at the end of a half hour or even one hour. The amount of

fat embolism which develops after the removal of the constrictors is dependent largely on the activity of the animals. Rabbits kept in chloral hydrate narcosis during the entire experimental period, following the crushing of the tibiae, develop only a small amount of fat embolism although the constrictors are not used. The removal, by means of a motor saw, of grafts from the tibia of normal dogs and rabbits produces an appreciable but very small amount of pulmonary fat embolism. The use of the chisel for the removal of the tibial grafts from dogs increases very slightly, if at all, the amount of fat entering the circulation. The spinal part of the Albee bone transplantation operation, on normal rabbits, produces more fat embolism than does the tibial part.

(To be continued.)

American Medical Biographies.

DWIGHT, THOMAS (1843-1911).*

Professor Dwight, at the time of his death, had completed a career of nearly forty years as an investigator and teacher of anatomy, and during the last twenty-eight years had held the Parkman professorship, having succeeded Professor Oliver Wendell Holmes in 1883. For the last two years he suffered from an incurable disease, but, far from being discouraged, kept continuously at his work in his department and gave practically all his regular lectures. His courage and cheerfulness never failed him during this distressing period and he was able to show in a way most satisfactory to himself and his colleagues what a man can accomplish in spite of physical suffering and an impending sentence of death. His abilities as a lecturer appeared to the best possible advantage during the term of 1910-11, in the last course he was to give; and at the same time he was able to add several valuable contributions to his work on osteology, that part of anatomical science which chiefly appealed to him, and in which he showed his best work as a scientist.

Thomas Dwight, son of Thomas and Mary Collins (Warren) Dwight, was born in Boston, October 15, 1845. As a very young boy he was

* From the forthcoming "American Medical Biography," by Dr. Howard A. Kelly and Dr. Walter L. Burrage. Any important additions or corrections will be welcomed by the authors.

taken abroad by his parents, making his first voyage in a sailing ship, and spent some years in Paris, where he attended school. On his return home he completed his education in Boston and entered Harvard College, with the class of 1866. After completing two years of his college course, he entered the Harvard Medical School, and obtained his degree of doctor of medicine in 1867, and an A.B., as of 1866, in 1872. After leaving the medical school he spent several years of study in Europe. He intended to engage in the active practice of his profession and attended the medical and surgical clinics of Berlin and Vienna, and also spent some time in England. His chief interest, however, was anatomical science and natural history, and part of his time abroad was spent in that study under Rüdinger at Munich. There he obtained his first knowledge and experience of the use of frozen sections in anatomical work, and was one of the first to introduce this method into America. In 1869 he returned to America and began practice in Boston and also in Nahant, his summer home. He continued in active practice for a number of years, but retired eventually in order to devote himself entirely to anatomy. During his active career as a practitioner he was surgeon to out-patients at the Boston City Hospital from 1877 to 1880, and visiting surgeon at the Carney Hospital from 1876 to 1883. In 1883 he was appointed a member of the board of consultation of the Carney Hospital and acted as president of the staff until his resignation in 1898.

In 1872 he was made instructor in comparative anatomy at Harvard, and, in 1874, instructor in histology, and gave, also, some instruction in embryology. At this time he was offered the position of lecturer in anatomy at the Medical School of Maine, at Bowdoin, and taught there until 1876, being professor of anatomy from 1873 to 1876, and in 1883 he was appointed Parkman Professor of Anatomy at Harvard.

Dr. Dwight was an excellent teacher and a strong, clear, and forcible lecturer. Under him the course to the first-year students was strengthened and expanded and a thorough course on regional and topographical anatomy for second-year men was gradually built up. He took especial interest in this advanced course and made it one of great practical value, but owing to changes in the curriculum it had to be given up in 1903. In the last few years he had developed a short course on x-ray anatomy,

which was intended to give the students some idea of the use of the x-ray and of the anatomical interpretations of x-ray plates.

Dr. Dwight's chief interest and his best anatomical work was in the anatomy of the skeleton and the joints, and on the normal variations in the body. His study of variations was applied chiefly to the spine and the hands and feet. For years he was engaged in making a very valuable collection of human spines, showing practically all possible numerical variations of the ribs and of the vertebrae in different regions and of fusions between different parts. The results of these researches appeared in a memoir of the Boston Society of Natural History and in contributions to other anatomical journals. He also studied and described the abnormalities at the top of the spine which might cause malpositions of the head and face. After completing his studies on variations of the spine he devoted himself to the same subject in the hand and foot, and succeeded in obtaining a remarkable series of specimens showing the chief variations in the carpus and tarsus and including several unique cases of variations in these regions. He was the first to find and describe the subcapitulum as a separate and distinct element in both hands. This was especially satisfactory to him, as Pfitzner had described the possibility of the separate existence of this element, but had never seen a case of it. In the foot he found two cases of an absolutely new element, the intercuneiform bone, which had never before been observed, and also two instances of the secondary cuboid bone. The first of these occurred in one foot and only one previous case had been seen by Schwalbe. The other occurred in both feet and was an unique case. In 1907 Dr. Dwight published an atlas on the variations of the bones of the hand and foot, based on the specimens in his collection and on x-rays. He was accustomed of late years to have x-rays made of all the hands and feet in the dissecting rooms, and accumulated in this way a valuable collection of plates, showing their normal structure and variations. He contributed the sections on bones and joints as well as those on the gastropulmonary system and accessory organs of nutrition in Piersol's anatomy. He made an extensive study, extending over several years, on the size of the articular surfaces of the long bones as a characteristic of sex, proving that the size of the articular ends was smaller in the female, and could be used as a means of identi-

fication. He was interested in the question of the estimation of height from the parts of the skeleton and on the identification of the human skeleton, and was able to make a practical use of his observations in several medico-legal cases. He wrote several articles on the general range and significance of variations in the skeleton and also on the question of mutations. One of his earliest publications was an atlas of the frozen sections of a child, which were among the first frozen sections to be made in this country. He always laid great stress on the importance of such sections in anatomical study and made many series for the department and for the museum. In addition to his work on the skeleton he wrote many other papers on anatomical subjects. He wrote several other monographs on subjects not strictly anatomical. Among these were a biographical sketch of Sir Richard Owen, a reminiscence of Dr. Holmes as a professor of anatomy, papers on contortionists and right-handedness, and several others on the methods of instruction in the Harvard Medical School, its policy as to the increase in the number of professors, and on changes in its medical curriculum.

Dr. Dwight devoted much of his time to the development of the anatomical part of the Warren Museum in the Medical School. It was his hope to be able to arrange the anatomical specimens so as to show the normal variations of all parts of the body. His collection of corrosions and frozen sections was very extensive, and he had made much progress with variations of the large vessels, the kidneys and the joints. Under his supervision, enlarged papier-maché models of the skeleton and abdominal viscera were constructed which have proved of great value in teaching. He was very proud of the museum and always impressed on his classes the practical value of a museum for the study and teaching of anatomy.

Dr. Dwight gave two courses of lectures at the Lowell Institute at Boston,—one in 1884 on the mechanism of bone and muscle, and another in 1889 on the significance of variations in the human body. From 1898 to 1908 he was a trustee of the Boston Public Library and gave freely of his time to aid in its development. He was much interested in that part of the library devoted to Catholic books and literature, and the expansion of this department was due chiefly to his efforts. He was president of the Association of American Anatomists in 1894, and was

also one of the original members of the editorial board of the *American Journal of Anatomy* and held this position until his death. From 1873 to 1878 he was an editor of the BOSTON MEDICAL AND SURGICAL JOURNAL. Besides the Association of American Anatomists, he was a member of the American Society of Naturalists, Fellow of the American Academy of Arts and Sciences, a member of the St. Thomas Aquinas Academy of Philosophy and Medicine of Rome, an honorary member of the Anatomical Society of Great Britain and Ireland, a member of the American Medical Association, and a former member of the Massachusetts Medical Society and several other medical societies in Boston. In 1889 he received the degree of LL.D. from Georgetown University.

In addition to his work in the Medical School, Dr. Dwight took an active part in the affairs of the Catholic church, of which he was a member, and was especially interested in the Society of St. Vincent de Paul. He joined the Holy Cross Conference in 1881, became its vice-president in 1884 and president in 1887. This position he resigned in 1892, but continued to remain a member. He was chosen president of the Central and Particular Councils of Boston in 1899 and held the former office until his death. He devoted much of his time to his religious work and to this society, and did much to further its welfare and influence. Dr. Dwight gave several addresses at meetings of the St. Vincent de Paul and other Catholic societies and conferences, notably one in 1908, before the American Federation of Catholic Societies at Boston, on the relations of the church and science. He completed a book entitled, "Thoughts of a Catholic Anatomist," in the winter of 1911, and had the satisfaction of seeing it published before his death. This book contained his theories on evolution and his opinions on the relations between Catholic thought and science. His deep religious feeling and his devotion and loyalty to his faith were his strongest characteristics and influenced to a great degree his opinions and his scientific point of view.

He had the good fortune to find the specimen of a free cuboides secundarium in one foot in the winter of 1910, and the unique specimen of that bone as a free element in both feet the following winter. The paper he wrote on the latter and another on irregular ossification in the transverse process and the rib at the junction of neck and thorax were his last contributions

to anatomical science. He always looked forward to meeting his classes at the first exercise in their medical career, and although in the summer he knew he was failing, still hoped to meet the class of 1911 at least once in the fall. This opportunity was denied him and his death occurred three weeks before the opening of the term, at his summer home, Nahant, Mass., September 8, 1911.

JOHN WARREN, M.D.

Book Reviews.

Roentgenotherapy. By ALBERT FRANKLIN TYLER, B.Sc., M.D. St. Louis: C. V. Mosby Company. 1918.

This volume on "Roentgenotherapy" is designed primarily for beginners in the study and practice of roentgenotherapy. The apparatus which is necessary for treatment is described and illustrated in order to make the mechanical and electrical aspects of roentgenotherapy familiar to the student. The interrupt-less transformer and the Coolidge tube are described with particular care, and methods of arranging the apparatus, of estimating dosage, and of treating different conditions are considered. The author classifies diseases according to the technic required for their treatment: superficial therapy is applicable to such conditions as are presented by eczema, lupus vulgaris, ringworm, and ulcers; diseases in which it is necessary to reach the deeper tissues, such as angiomas, tuberculous glands, uterine fibroids, and malignant growths, require deep therapy treatment. These conditions are carefully described and are illustrated by many case histories observed during a period of ten years of the author's experience.

Johnson's Standard First Aid Manual. Edited by FRED B. KILMER. Eighth Edition, revised. New Brunswick, N. J.: Johnson and Johnson. 1918.

Among the numerous books recently published presenting methods of first aid treatment in emergency cases, "Johnson's Standard First Aid Manual," of which this is the eighth edition, is one of the most valuable. The collaboration of many first aid teachers and workers, experienced in railway, mining, police, and ambulance service throughout the country, has made this book the expression of the most varied, recent, and eminent opinion. Directions are given for the preparation of home-made appliances and of material most likely to be found at the place of accident. Emphasis is laid on the fact that first aid treatment does not include the treatment of injuries, the administration of medicine, and the diagnosis of disease—rightly the

province of the physician. This manual does not attempt to give instruction in anatomy, physiology, or surgery. This eighth edition, improved in arrangement and simplicity and by additional illustrations, presents with unusual clearness a comprehensive view of standard first aid measures.

The Disabled Soldier. By DOUGLAS C. McMURTRIE. New York: The Macmillan Company. 1919.

This book describes in a manner interesting to the doctor and to the lay reader as well the growth of public concern in the rehabilitation of the disabled man. Up to the present time, public opinion has almost taken for granted that the cripple and helpless should be objects of charity; that physical handicap was a barrier to a great many educational advantages and consequently to a useful place in the world of work. Dr. McMurtrie, however, in the presentation of the result of eight years' study of the possibilities of reconstruction, gives us a most optimistic view of the situation. Coming to print, as it does, in a time of world-wide interest in the disabled soldier, this volume fills a distinct need. A brief history of the social attitude toward the cripple is given at the beginning of the book and throughout each chapter the spirit of hopefulness and courage impresses itself on the reader. Twenty-five illustrations, most of which are actual photographs, prove that such development accomplished in schools like the Red Cross Institute for Crippled and Disabled Men, especially for the returned soldier, is thoroughly practical and not merely theoretical.

The Human Skeleton. By HERBERT EUGENE WALTER. New York: The Macmillan Company. 1918.

This book has for its purpose the description and interpretation of the human skeleton. It is a theoretical comparison of what the skeleton is at present, and what it was, and what it may become from the point of view of the biologist. The method of presenting this subject for use as a textbook is interpretative and one which tends to lead to a desire for a better understanding of this important part of the human machine. The book is divided into eleven chapters and contains seventy-five descriptive illustrations. The study of physical types, the comparison of man with the higher animals and the various stages of skeletal rôle are discussed by the author under the following headings: The Make-up of the Skeleton, Nature's Experiments with Skeletons (discussing skeletal evolutions), External Skeletal Trimmings, The Oldest Part of the Skeleton, The Thoracic Basket, Evolution of the Brain Case, The Human Skull, Fashions in Skulls, The Locomotor Skeleton, and The Handy Foot and The Makeshift Foot.

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AGRICULTURAL AND INDUSTRIAL TUBERCULOSIS COMMUNITY.

The importance of the problem of reeducating and finding suitable employment for discharged soldiers afflicted with tuberculosis has been recognized by the Federal Board for Vocational Education. A study has therefore been made of the possibilities in a plan for an agricultural and industrial community for tuberculous people who are able to work. An article written by H. A. Pattison, M.D., and issued under the direction of the Advisory Committee of the National Tuberculosis Association, presents valuable observations on this subject.

Although the campaign against tuberculosis has accomplished a great deal, it is recognized that there have not been developed adequate plans and facilities for the post-sanatorium treatment of patients. It is difficult for a patient, after living according to a prescribed regime in a sanatorium, to adjust himself to his

environment on his return home so that his new life will not result in reactivation of the disease. It is probable that his chances for permanent arrest would be greater if he could work and associate with men governed by physical limitations like his own. His work, rest, play, and all his activities should be carefully guarded for a number of years.

There are some men and women who can resume their former occupations without endangering their health; others can regain their strength only by finding new vocations; but practically all require, for a while, part-time work under medical and nursing supervision in a well chosen environment. For this little provision has been made, and the suggestions which have been offered for the organization of colonies should receive careful consideration. An attempt to develop a plan for a complete village for tuberculous persons has been made by Dr. Bayard T. Crane, president of the Rutland Private Sanatorium Association. The association owns ninety acres of arable and wooded land, upon which there are a farmhouse, barn, some stock, a dairy, and farm implements; a residential, recreation, and workshop building has been built and partly equipped. Other industrial committees have developed in this country. Many have grown about a single industry for the sake of that industry. Would it not be possible, however, to develop industries around a community for the sake of that community? By this means, arrested cases of tuberculosis among soldiers, sailors, and civilians could be employed and yet without injury to their physical condition. The author of this article proposes that a modern village be laid out to care for five or six hundred people immediately, with a possible expansion to four thousand. There should be an efficient department of health, and diagnostic, pathological, and research laboratories. As the population should be drawn from the sanatoria of neighboring states, a sanatorium should be built in or near the village. Schools of the open-air type should be constructed. The development of industries is of prime importance, and the possibilities of employment for tuberculous patients are many and varied. Agriculture, too, is another possibility, although very often the work proves to be too hard for this type of person.

The inauguration of such an agricultural and industrial community offers many possibilities, which agencies engaged in war reconstruction

work may find useful in solving some of the difficult problems involved in the reëducation and employment of disabled men.

AMERICAN JOURNAL OF CARE FOR CRIPPLES.

The *American Journal of Care for Cripples*, volume eight, number five, contains a number of articles both interesting and instructive. The first, by Gustave Schulz, describes the status of the cripple in primitive society. From earliest history, the cripple has called forth emotions of mingled aversion and sympathy. His position in primitive society has always been precarious, both because his deformity has been looked upon with repugnance and superstition, and because of his economic uselessness. Conditions have not always been as they are today among civilized peoples, when these men cannot be supported in idleness by Governments nor can industry afford to dispense with their latent productive power.

The attitude of contemporary primitive society toward the hopelessly dependent, the accidentally disabled, and the congenitally deformed is still far from commendable. Among the Eskimos, probably because it is an economic necessity, individuals who are a burden to the community may be killed. In some parts of the world, normal new-born infants and old and infirm people, as well as stunted or idiotic persons, are included among the helplessly dependent and killed, not so much from any innate disposition to cruelty as from the material exigencies of primitive life. It is also true that this custom is often continued for superstitious reasons after there is no longer need for it on the ground of material necessity. Accidental cripples appear to lose their social standing together with physical usefulness. We hear little of this type of person in primitive society. One reason may be the fact that the savage often prefers to die with a limb on than live without it, believing as he does that if he becomes crippled in this world he faces the next with a like deformity. Among primitive war-like peoples, death is preferred to the social degradation which accompanies serious physical handicap. In the case of the congenitally deformed, it is customary for the appearance of anything unusual to be apprehended by the savage as a manifestation of some higher

dreaded power, and physically abnormal children are regarded as in some degree incarnations of the "unknown." Congenital deformity is regarded as a consequence of some transgression against the wishes of the gods. A number of myths are quoted in this article to illustrate primitive belief and customs.

This number of the *American Journal for Care of Cripples* contains several studies of conditions resulting from the war. The problems which a civilian sanatorium must face in the treatment of soldiers are considered by Captain J. Roddick Byers, C.A.M.C., in his article, "Occupation and Industrial Training of Tuberculosis Cases in Sanatoria." "Le Jonet de France," by Captain Edward A. Hackett, describes, through the story of a war-cripple's venture into the toy-making industry, the aims of a group of workers in France. The problem of treating and training discharged disabled men in England is discussed by Hon. Edward H. Cozens-Hardy. "Employment of the Disabled," by Dr. Granjux, and "Reëducation of the Disabled in the Institutions of the French Ministry of Agriculture," by Agricultural Inspector Chanerlin, indicate a recognition of the many problems yet to be faced, and intelligent interest in their solution.

CHILD WELFARE IN FRANCE AND GERMANY.

The *British Medical Journal* has published in a recent issue an article of considerable interest on the child welfare measures which were adopted in France and Germany during the war. Before the outbreak of hostilities, regulations regarding the employment of women in factories were carefully enforced; but with the increased demands of war upon industry, consideration for the future was sacrificed to the exigencies of the present, and palliative rather than preventive measures seemed to be the best which could be expected.

In order to mitigate some of the existing evils, efforts were made to enable the woman who was needed in industry to be, also, a mother. The number of nursing rooms were increased in both France and Germany; and crèches for older infants not at the breast and for older children were organized with some attempt at providing medical supervision. Nursing rooms and

crèches were established as near as possible to the factories where the mothers worked. Furthermore, in 1917, a law was passed by which employees were required to grant special resting periods for mothers for nursing their children. For children of pre-school age, day shelters were provided in Germany, and infant schools with playgrounds in France; as the war progressed, these advantages were more and more extended to all children.

These measures, it must be admitted, met with opposition and were carried out to the full with difficulty. Working mothers generally did not seem inclined to trust their children to the institutions, possibly because of the defective medical and nursing care provided. On the other hand, the workers in the institutions were poorly rewarded, and it was difficult to obtain trained workers. Consequently, in both France and Germany, in the majority of cases children were entrusted to the care of relatives and neighbors. The need for supervision was recognized, however, and enforced to some extent. In Mannheim, for example, a nurse visited the homes of these foster children regularly, and they were examined periodically by physicians appointed for that purpose.

In both countries, but more particularly in France, measures were taken to help the mother to be a mother. For example, the law of 1913, which has provided optional rest for women before confinement, was altered to make this rest obligatory for women employed in war factories. In France, an allowance from the public funds was available for mothers who were in need of it, for eight weeks, at least four of which had to be after childbirth. In Germany, a law was passed providing for maternity grants, to be given through the sickness societies to all women who were employed in industry. Arrangements were made at the French munition factories so that every woman who had been employed in the factory for more than three months should receive full wages during four of the eight weeks.

In both France and Germany, the realization of the dangers due to neglect in the care of child life became more fully recognized as the war went on, and increased effort was made to meet and to prevent these dangers. The expectant mother was made to feel that it was a national duty not to neglect herself and her unborn child. Now that the war is at an end and married women will no longer need to work in munition

factories, would it not be well to consider how far the measures which were adopted for their comfort and safety during the war may be continued in time of peace?

MEDICAL NOTES.

INFLUENZA AMONG THE ESKIMOS.—Details of the epidemic of influenza among inhabitants of Eskimo settlements in Labrador last winter have been furnished by northern missionaries. It has been reported that in one settlement, all of the one hundred inhabitants became ill, and in a week, eighty-six died, leaving only eight children, five women, and one man surviving. Because of the great numbers of dead and the weakness of the survivors, there was extreme difficulty in disposing of the dead.

INFLUENZA AT THE NEW JERSEY STATE VILLAGE FOR EPILEPTICS.—A report on the influenza epidemic at the New Jersey State Village for Epileptics, published in the *Public Health News* bulletin of the New Jersey Department of Public Health, records data concerning the cases at this institution. When the first case occurred, there were seven hundred and sixty-eight epileptic patients and sixty-eight employees distributed in fifteen dwellings. In addition to these, there were sixty-four persons living in the eight dwellings occupied exclusively by employees and their families, thus making a total population of nine hundred. Among this number, there were four hundred and twenty-two cases of influenza and sixty-seven deaths. It is probable that nearly all of the persons residing in the village were exposed to infection at some time during the epidemic.

The outbreak of the disease extended over a period of sixty-four days, from September 25 to November 27. More than forty-six per cent. of the entire population of the institution contracted influenza during the epidemic. The case incidence was considerably higher among inmates, epileptic patients, than among employees. The highest case incidence is shown among persons between the ages of ten and twenty, and a marked and continuous decrease occurred in the case rate in each five year period from twenty-five to sixty years. Distribution of cases by sex shows that 58.8 per cent. of the male population and 41.1 per cent. of the fe-

males contracted influenza. The fatality rate of all cases was 15.8 per cent. The case incidence among the vaccinated and unvaccinated was practically the same; while the fatality rate was substantially lower among the cases that developed after the third vaccination than it was among cases that occurred in unvaccinated persons, it is believed that this was not true in a sufficient number of cases to warrant a conclusion that vaccination produced this result.

EVOLUTION OF SCIENTIFIC MEDICINE IN THE UNITED STATES.—In the *British Medical Journal* is briefly reported an address by Sir William Osler, in which he outlined the evolution of scientific medicine in the United States. He stated that it may be divided into four periods. The first, the British period, to 1820, was concerned with medicine in old colonial days, showing the influence of Edinburgh and of John Hunter, and coming down to the New England group represented by Jacob Bigelow and James Jackson. The second, French, period extended from 1820 to 1860, when the influence of Laënnec and Louis was supreme. Of the third, German, period, extending from 1860 to 1890, the main features were specialism at the Vienna school, the teaching of Virchow and Koch, and the work of Traube in experimental medicine. The fourth period is the American, from 1890 to the present day, its chief features being the reorganization of hospitals as integral parts of the university system, and unit and team work illustrated in the clinics of Cushing, Halsted, and the Mayo brothers.

KASHMIR MEDICAL MISSION.—The *British Medical Journal* has summarized the work of the hospital at Srinagar during the year 1917. The hospital contains 150 beds, including 40 for women, and from 10 to 20 are usually occupied by children. The following is a summary of the medical and surgical work:

New out-patients, 16,159; total attendance, 38,934; in-patients, 1,719 (1,345 surgical and 374 medical). The surgical operations numbered 4,143 and there were 28 deaths. There were 23 deaths from medical diseases. Of 938 major operations, about 200 were on the eye, including 96 for cataract. The number of cases operated on for epithelioma was 104, almost all of the Kangri burn type. In 1917 the Durbar made a grant of 4,000 rupees, which was particularly acceptable as a mark of

state recognition of the work of the hospital. In the Kashmir State Leper Asylum there were 106 patients at the beginning of 1917; during the year 110 new cases were admitted, making a total of 216 (161 men and 55 women). Sodium gynocardate is in regular use; of eight cases treated for eight months, there were signs of improvement in five. Three patients who had been in the hospital for some years under various treatment, including nastine, were pronounced to be definitely cured. The value of the work of medical missionaries in India is great.

BOSTON AND MASSACHUSETTS.

WEEK'S DEATH RATE IN BOSTON.—During the week ending July 27, 1919, the number of deaths reported was 155, against 221 last year, with a rate of 10.15, against 14.69 last year. There were 20 deaths under one year of age, against 54 last year.

The number of cases of principal reportable diseases were: Diphtheria, 43; scarlet fever, 9; measles, 15; whooping cough, 24; tuberculosis, 30.

Included in the above, were the following cases of non-residents: Diphtheria, 12; scarlet fever, 3; measles, 1; whooping cough, 1; tuberculosis, 1.

Total deaths from these diseases were: Measles, 1; whooping cough, 1; tuberculosis, 12.

Included in the above, were the following non-residents: Measles, 1; whooping cough, 1.

NEEDS OF RUSSIAN REFUGEES.—The Boston Committee for Refugees in Russia has received word that important work is being done in Constantinople in the repatriation of Russian refugees to the Caucasus, and in coöperation with the British and American authorities in relieving the distress caused by the sudden evacuation of Odessa by the Allied forces and the capturing of the Crimea by the Bolsheviks. A report which has been received recently states that there are hundreds of orphan children in South Russia without clothing.

PETER BENT BRIGHAM HOSPITAL.—The fifth annual report of the Peter Bent Brigham Hospital for the year 1918 shows that in spite of war conditions, the general work of the hospital has been maintained with its usual efficiency and devotion. Thirty physicians or surgeons left the hospital to join the army during the war, and

the hospital has been handicapped by a lack of male help, particularly ward tenders, whose work has been performed to a great extent by nurses.

During the year there have been admitted into the hospital wards 4025 patients, and 7952 new patients have been treated in the Out-Door Department. The Asthma Clinic has had 252 new patients; there have been made 3406 examinations by the x-ray department, and 3345 by the serological laboratory; 1081 ambulance calls have been made. The financial report shows that the total operating expenses for the year have been \$320,547.28, and receipts from patients have amounted to \$154,026.47; for the year 1917, the operating expenses were \$323,777.72, and receipts from patients, \$138,512.48. The number of free cases have increased during the year by 204, the part-pay cases have decreased by 352, while those who have paid in full amount have increased 498.

The School of Nursing increased the size of its classes owing to the war. Twenty-seven applicants were admitted in January, 20 in May, 28 in September, making a total of 75 probationers admitted, of whom 33 have been accepted into the school and 23 start on the wards in January. The school census has been as high as 145 this year. At the request of the Red Cross, a course for nurses' aides was organized and the number of hours increased from 72 to 240. On May 1, the number of nurses sent to the New York Nursery and Child's Hospital was increased to five. The faithfulness of the nurses during the influenza epidemic is greatly to be commended.

The Social Service Department has carried on its work during 1918 amid unusual hardship and sorrow. A detailed report of several patients illustrates the type of medical social service rendered by the workers of this department. The assistance given by the Woman's Motor Detachment of the American Red Cross has been of inestimable value.

The report of the pathologist records 300 deaths in the medical service of the hospital and 71 in the surgical service. Forty-five autopsies, based on 372 deaths, were performed and gave a percentage of 40— for the year. The increased number of deaths during 1918 was due to the epidemic of influenza. There were 2,224 surgical and bacteriological examinations. Research work on Rocky Mountain spotted fever and on influenza has been conducted during the year.

In the absence of Dr. Harvey Cushing, surgeon-in-chief of the hospital, and because of the subsequent changes and the diminution of the staff, the work of the surgical service has been conducted under difficulties. It was only through the untiring effort and devotion of those who remained at home that the professional service of the department has been maintained at its usual standard. There were 1777 patients admitted to the surgical department during the year, and a total number of 1474 operations were performed. The surgical out-door department cared for 3574 new cases and there was a total of 23,321 visits. The number of patients treated both in the hospital and in the out-door department was less than in the preceding year, a situation which probably can be explained by the fact that during the influenza epidemic the amount of surgical work done was reduced to a minimum. The department conducted weekly clinics for groups of medical officers who had been sent to Boston for the study of orthopedic surgery, and the surgical instruction to students of the Harvard Medical School was continued. A new plan was tried with success in the administration of anaesthesia, this work being entrusted to house officers during their second rather than during their first periods. This report emphasizes among the requirements which will be necessary for the future development of the surgical service the need for proper accommodations for study and for private offices for the junior members of the visiting staff.

The medical department, although confronted by the same difficulties which the war has caused in other departments, was able to continue its efficient service to patients. It has been pointed out, however, by the physician-in-chief that complacency arising from satisfaction about what has been accomplished during the war should not retard new projects and investigation. The needs of this department are an increased number of house officers, residents, staff assistants, and opportunity for enlargement. Of most importance during the year was the influenza epidemic. The situation arising from the seriousness of this epidemic was made even more difficult by the fact that more than half of the nursing and medical staffs suffered from the disease. From September 9 to December 31, 557 cases were treated, of whom 153 died. The unfaltering service of the nurses who served during this epidemic merits deep gratitude and praise. The

total number of medical admissions to the hospital during 1918 was 2406.

The work of the out-door department has been conducted as usual in spite of the many changes in the staff made necessary by the war. The cardiac, diabetic, and renal classes have been attended regularly. A bronchial asthma clinic was conducted and 252 new patients studied and treated.

The report contains a list of scientific publications which have been contributed by members of various departments during the year. Statistical tables of medical and surgical diseases and operations indicate the types of cases cared for, and the histories of fatal cases are reviewed. This record of work accomplished under most trying conditions, at a time when war and epidemics greatly increased the demands upon a limited staff, reflects the spirit of coöperation and unselfish devotion in the performance of the service rendered by the Peter Bent Brigham Hospital.

NEW ENGLAND NOTES.

WAR RELIEF FUNDS.—The principal New England War Relief funds have reached the following amounts:

Jewish Relief fund	\$2,524,196.58
French Orphanage fund .	508,644.96
Italian fund	299,185.58
Serbian fund	140,482.09

Miscellany.

APPOINTMENTS IN THE MEDICAL CORPS.

At the present time there are six hundred vacancies in the Medical Corps, Regular Army. The following circular, number 346, has been published in order to provide for a method of filling these vacancies. An examination will be held, for which only emergency medical officers who have served during the war are eligible. It is the present intention of the War Department to hold this examination on Aug. 25, 1919, and consideration can not be given to any application which is not received in time to enable action to be taken on it by the Surgeon-General prior to August 16th.

APPOINTMENTS IN THE MEDICAL CORPS (PERMANENT ESTABLISHMENT.)

1. For the purpose of filling existing vacancies in the permanent Medical Corps, United States Army, applications will be received by the Adjutant General of the Army, from those who desire appointment. In view of the large number of vacancies existing, appointments will be made as expeditiously as possible, so much of Circular No. 21, War Department, 1919, as is in conflict being rescinded. There are no vacancies in the Dental Corps, Veterinary Corps, or Sanitary Corps, to be filled at this time.

2. Vacancies will be filled by appointments in the following order:

a Emergency medical officers now in service.
b Members of the Medical Section, Officers' Reserve Corps, who served with credit as officers during the war.

c Former emergency medical officers who served with credit during the war.

3. Section 10, Act of Congress approved June 3, 1916 (Bul. No. 16, W. D. 1916), as amended by Act of Congress approved August 29, 1916, (Bul. No. 33, W. D. 1916), requires that persons hereafter commissioned in the Medical Corps shall be citizens of the United States, between the ages of 22 and 32 years, and original appointments shall be in the grade of first lieutenant.

4. All applicants whose applications are considered satisfactory will be authorized by the Adjutant General of the Army to appear before a convenient examining board to determine their fitness as to mental, moral, physical, and professional qualifications. Applications will not be approved in those cases where, on September 30, 1919, the applicant will be more than 32 years of age.

5. All persons eligible for and desiring appointment should address a letter of application for examination to the Adjutant General of the Army without delay. The following data will be furnished by applicants, and any less than the data enumerated will not be considered satisfactory and will lead to delay:

a Name in full. (Initials not acceptable.)

b Date of birth.

c Place of birth.

d Permanent home address.

e Medical school or schools from which graduated with dates.

f Professional experience.

g If an officer who has served during the emergency, complete statement of military service, setting forth (1) the organizations in which served and inclusive dates, (2) present organization if still in the service, (3) grade in which originally appointed, (4) present grade if still in the service, (5) date, place of discharge, and rank at time of discharge if no longer in the service.

h Statement of any service as a contract surgeon, in the Medical Reserve Corps, or in the Medical Section, Officers' Reserve Corps.

i In cases of alien birth: (1) documentary evidence of naturalization, (2) if naturalized through parent, documentary evidence of father's naturalization and sworn statements from two reputable United States citizens establishing relationship between candidate and his father.

6. Applications from candidates still serving as emergency officers will be forwarded to the Adjutant General of the Army through military channels. Strict compliance with the provisions of paragraph 786, Army Regulations, is enjoined.

7. Applicants not in military service must appear for examination without expense to the Government.

8. After consideration of their applications, selected applicants will be sent letters authorizing them to appear for examination. Examining boards will be convened by instructions from the Adjutant General of the Army and will follow such procedure as may be directed by the Surgeon General of the Army.

9. Applicants in Europe will address their applications to the Commanding General, American Expeditionary Forces, who will cause the examinations to be held and records thereof to be forwarded to the Surgeon General of the Army.

(210.1, A. G. O.)

By order of the Secretary of War:

Official: **PETTON C. MARCH, General,**
Chief of Staff.
P. C. HARRIS, The Adjutant General.